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09/597,966	06/20/2000	Xiaochun Li	S00-042	5925

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Joshua D Isenberg  
Lumen Intellectual Property Services  
Suite 110  
45 Cabot Avenue  
Santa Clara, CA 95051

EXAMINER

VALENCIA, DANIEL E

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 11/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/597,966

Applicant(s)

LI ET AL.

Examiner

Daniel E Valencia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10-09-02 (election).
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-63 is/are pending in the application.
- 4a) Of the above claim(s) 1-6 and 35-63 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 and <sup>31</sup>30-34 is/are rejected.
- 7) ☒ Claim(s) 29 and 30 is/are objected to.
- 8) ☒ Claim(s) 1-63 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

This Office action is in response to applicant's election filed on October 9, 2002.

Applicant's election with traverse of An Embedded Sensor Device (Group III) in Paper No. 7 is acknowledged. The traversal is on the ground(s) that the device of Group III cannot be made by a method other than the method of Group II, and in particular the Examiner's example stated in the original restriction requirement. This is not found persuasive because nothing in the independent claim of Group III precludes the making of the device by metal molding. It should be noted that the restriction is not being made upon the specification, but merely what is in the claims. Further, the invention of Claim 7 could be made by placing a sensor in a housing filled with metal ball bearings of a sufficient melting point.

The requirement is still deemed proper and is therefore made FINAL.

### ***Inventorship***

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

### *Drawings*

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 418. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Specification*

The disclosure is objected to because of the following informalities: The abstract is longer than 150.

Appropriate correction is required.

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 7-10, 12, 15, 17, 18, 22, 23, 33, and 34 are rejected under 35 U.S.C. 102(e) as being anticipated by Golnas U.S. Patent No. 5,996,219. Golnas discloses a method for embedding electric or optical components in high temperature metals with all the limitations of the abovementioned claims. Regarding claim 7, Golnas discloses a metal embedded sensor (see fig 7 and 8) comprising: a metal structure comprising a metal having a melting temperature above 660°C (col. 5, lines 20-25 and col. 1); and a sensor embedded (fig 8) inside the metal structure. Golnas further discloses that the metal structure comprises a coating metallic layer (30 and 32); and an embedding metallic layer (18), as mentioned in claim 8. With reference to claim 9, Golnas discloses that the embedding metallic layer is formed by laser deposition (col. 6, lines 40-65). Golnas further discloses that the coating metallic layer comprises a first metallic layer (30), and a second metallic layer (32) on the first metallic layer, as explained in instant claim 10. Golnas discloses the first and second metallic layers can be formed by electroplating (col. 4, lines 55-bottom), as mentioned by instant claim 12. Regarding claims 15 and 17, Golnas discloses that the first and second metallic layers can be made of copper (col. 4, lines 45-50). Golnas discloses that the sensor can take the form of a fiber optic sensor (fig 11), as mentioned by instant claim 18. The disclosure also states that the sensor can take the form of a thin-film thermo-mechanical sensor (col. 2), as mentioned by instant claim 22. Referring to claim 23, Golnas discloses that the sensor comprises a first insulating layer (14); a sensor layer (22a or

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22b) disposed on the first insulating layer; and a second insulating layer (28) disposed on the sensor layer. Golnas further discloses that the first and second insulating layers comprise insulating oxides that can contain aluminum (col. 4, lines 1-30), as described by instant claims 33 and 34.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11, 13, 14, 16, 31, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Golnas U.S. Patent No. 5,996,219. Golnas as applied above, discloses a method for embedding electric or optical components in high-temperature metals with a majority of the claimed limitations of the present invention. Regarding claims 11 and 13, although Golnas does not explicitly state that the first metallic layer must be made by sputtering, his disclosure does teach the use of sputtering to deposit metallic and non-metallic layers (col. 3, lines 50-bottom). Regarding claims 14, 16, 31, and 32 the thickness of the first metallic layer and the second metallic layers and the first and second insulating layers are non-critical design choices. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use sputtering to make the first metallic layer.

Claims 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Golnas in view of Sugihara U.S. Patent No. 4,928,513. Refer to the appropriate drawings or parts of the specification. Golnas as applied above, discloses a method for embedding electric or optical components in high-temperature metals with a majority of the claimed limitations of the present invention. However, the reference fails to disclose an adhesive layer attached to the insulating layer.

On the other hand, Sugihara discloses a thermo mechanical sensor that teaches some of the limitations that the Golnas reference lacks. Regarding claims 24, 25, 27 and 28, Sugihara discloses that the thermo mechanical sensor (col. 2 and fig 6) uses a titanium adhesive layer on one side of the insulating layer and on one side of the substrate (col. 10, lines 60-bottom). Sugihara discloses that it is advantageous to use titanium as an adhesive layer in thermo mechanical sensors, because of its high melting point and adhesive properties (col. 10, lines 60-bottom). Regarding claim 26, the thickness of the adhesive layer is a non-critical design choice. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use titanium as an adhesive layer in the device disclosed by Golnas.

Claims 19, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Golnas in view of Holman U.S. Patent No. 4,788,406. Refer to the appropriate drawings or parts of the specification. Golnas as applied above, discloses a method for embedding electric or optical components in high-temperature metals with a majority of the claimed limitations of the present invention. However, the reference fails to disclose an adhesive layer attached to the insulating layer.

On the other hand, Holman discloses micro-attachment of optical fibers for use in optical sensors. Regarding claims 19 and 20, Holman teaches the use of adhesive with optical sensors, wherein the adhesive can comprise titanium (col. 7, lines 1-3). Referring to claim 21, the thickness of the adhesive layer is a non-critical design choice. Holman teaches that it is advantageous to use adhesives to bond optical components together. Further, Holman teaches that these types of adhesive layers are well known (col. 1). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use an adhesive layer comprising titanium in the device disclosed by Golnas.

*Allowable Subject Matter*

Claims 29 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: As to dependent claim 29, the prior art of record alone or in combination fails to disclose or render obvious a metal embedded sensor wherein the substrate comprises stainless steel along with all the limitations of claims 7, 8, 10, 17, and 22-28.

The following is a statement of reasons for the indication of allowable subject matter: As to dependent claim 30, the prior art of record alone or in combination fails to disclose or render obvious a metal embedded sensor, wherein the sensor layer comprises constantan along with all the limitations of claims 7, 8, 10, 17, 22, and 23.



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*Conclusion*

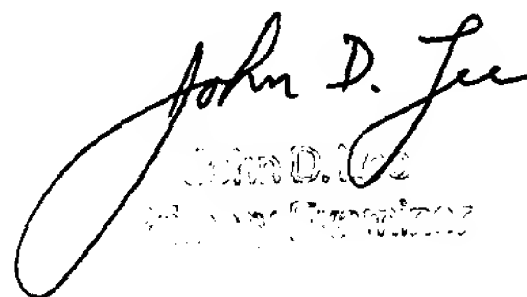
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel E Valencia whose telephone number is (703)-305-4399. The examiner can normally be reached on Monday-Friday 9:30-6:00.

The fax phone numbers for the organization where this application or proceeding is assigned are (703)-308-7724 for regular communications and (703)-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0956.

DV

Dan Valencia  
November 5, 2002

  
John D. Lee  
Examiner